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ABSTRACT

A study was conducted to investigate the effects of handwriting on the grades assigned to essays. Contrary to previous studies, this study employed a grading situation in which teachers holistically evaluated many papers as rapidly as possible simulating real grading conditions. Good handwriting was defined as that done by five experts in the Palmer Handwriting Method. The essays were 200 to 250-word themes written by 500 ninth graders. Forty-five were randomly selected and rewritten by the Palmer experts. The copies, plus the original student-written themes, were scored by a team of 12 teachers trained in the Diederich holistic method. A t-test for correlated data was conducted to analyze the difference between the scores on the students' original papers and the papers rewritten by the experts. The results indicated that the papers written in expert handwriting were evaluated by the teachers as significantly better papers. The results also indicated that the scores of the upper two-thirds of the papers tended to improve more than those of the lower third. (HTH)

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THE EFFECT OF HANDWRITING ON TEACHERS'

GRADING OF HIGH SCHOOL ESSAYS

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Previous studies on the effects of the quality of handwriting on the grades teachers give to essays at the secondary school level have had inconclusive results. Marshall and Powers (1969) found a significant difference between neatly written essays and fairly neat essays, but poorly written papers were not rated significantly different from those that were neatly written. Soloff (1973) found a significant difference between the grading of "neat" and "sloppy" essays when no specific instructions were given to the graders on how to evaluate the content of the papers, but Chase (1968) failed to find significant differences in scoring due to handwriting variations when a key to the expected content was given to the graders.

This study attempted to investigate the effects of handwriting on essay grades. The research design for this study changed the methods used in previous studies in three major ways. These changes were as follows:

1. The grading situation involved teachers evaluating many papers as rapidly as possible, a circumstance which is more realistic than that of previous studies in which each grader spent up to twenty minutes on a single paper and graded only one or two papers. It seems fair to assume that when boredom and fatigue are likely to be present, extraneous factors such as handwriting are more likely to influence grades than when the grader is carefully considering a single paper after having been directed to consider content only.

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2. The quality of handwriting is operationally defined differently than in previous studies. Good handwriting was defined as that done by five experts in the Palmer Handwriting Method. The writing which was compared to the expert penmanship was that found on 45 student papers selected at random from a group of 500 papers from students of all ability levels and with all types of handwriting. Therefore, the quality of student writing varies from neat and legible to sloppy and nearly illegible, while the expert writing was constant in quality.
3. In earlier studies the rating method was controlled only by directions given to the graders. All of the papers in this study were evaluated by a team of 12 teachers who had been trained in the Diederich holistic scoring technique.

Method

The essays were 200-250 word themes written by 500 ninth graders. All were written during a class period on an assigned topic, and the same directions were read to all of the students. The students were told they were being screened for placement in sophomore English classes and were asked to write a paper which would be (1) organized, (2) mechanically correct, and (3) neat.

For the handwriting study, forty-five (45) of the papers which had been graded by the Diederich holistic method were randomly selected, 15 from the upper third, 15 from the middle, and 15 from the lower third of the total group (500). Experts in the Palmer Handwriting Method copied each of the papers, taking care to change nothing except the handwriting. The copies, plus the original student-written themes, were scored using the Diederich holistic method. Therefore, each paper was scored using the same method twice, once in the student's handwriting and once in expert handwriting.

The Diederich scale is an analytic type of holistic scoring system in which an essay is judged on organization (10 points), ideas (10), wording (5), flavor (5), usage (5), punctuation (5), spelling (5), and handwriting (5). The scorers are trained to read through each essay once and then mark the appropriate value for each category on the basis of their general impression of the paper. Each paper is scored by two readers; if they disagree by ten points or more, the paper is given to a third reader. The two closest scores are then added to make a final score. This system is reputed to have high reliability if scorers are trained to use common definitions for the categories (Diederich, 1974; Cooper, 1977, Horner, 1978). The team of scorers used in this study were teachers from the local school district who had volunteered to assist with the annual scoring project. The same team scored the original and rewritten papers on a single day. Prior to commencing scoring inter-rater-reliability training was conducted to ensure high levels of accuracy in scoring.

Results

A t-test for correlated data was conducted to analyze the difference between the scores on the students' original papers and the papers rewritten by the experts. Table 1 provides the data of these analyses. The results of these tests demonstrate that the papers written in expert handwriting were evaluated by the teachers as significantly better papers. These results hold for the three different levels of papers as well as the total group of 45 papers. The researchers prescribed significance at the .05 level of confidence. As the reader can observe, the significant levels obtained were all well beyond this acceptable level.

Table 1

t-tests of Significance of Differences Among
Mean Scores Obtained by the Two Scorings
(Student Handwriting vs Expert Handwriting)

Group(s)	N	$\bar{X}_1^1$	SD ¹	$\bar{X}_2^2$	SD ²	t	Prob.	Sig.
Low Third	15	37.2	6.7	44.5	8.6	3.51	$\leq .003$	Sig
Middle Third	15	47.8	12.7	58.1	15.2	3.04	$\leq .009$	Sig
High Third	15	59.1	11.0	70.8	14.2	3.45	$\leq .009$	Sig
Total	45	48.0	13.6	57.8	16.7	5.66	$\leq .001$	Sig

1= X_1 and SD for the original student-written papers

2= X_2 and SD for the expert rewritten papers

In addition, the researchers conducted a Sign Test. This test was performed to analyze the significance of the number of changes in the scores that improved and those that decreased. The data for this analysis are presented in Table 2. The results indicate that the rewritten papers were beyond the prescribed level (.05) and were recorded at .001 level of significance. This analysis also indicated a strong agreement for handwriting proficiency.

Table 2

Sign Test Analysis

Cases	N ¹	N ²	Z	Prob.	Sig.
45	9	35	3.8	$\leq .001$	Sig

1=Number of cases with poorer scores after the paper was rewritten by experts.

2=Number of cases with better scores after the paper was rewritten by experts.

The final analysis conducted was an analysis of mean changes among the three subgroups. The mean differences ($X_1 - X_2$, Table 2) were 7.8 for the low

group, 10.3 for the middle group and 11.7 for the high group. These scores were used to calculate an analysis of differences in means. The results of these analyses are presented in Table 3 below. Although there were changes in the three groups the t-test of mean changes did not yield significant differences at the prescribed level (.05).

Table 3

t-test Analysis of Differences of Mean Changes ($\bar{X}_1 - \bar{X}_2$)
Among the Three Group Mean Scores

Group(s)	t-Values and Significance Decision					
	Low Third	Sig.	Middle Third	Sig.	High Third	Sig.
Low Third	X					
Middle Third	.77	NS	X			
High Third	1.33	NS	.33	NS	X	

Conclusions

From this study, it may be concluded that the presence of expert handwriting significantly improves the grades teachers assign to high school essays. Also, this study indicates that the scores of the upper two-thirds of the papers tended to improve more than those of the lower third. Too often, handwriting instruction beyond the elementary level is considered important only for remedial students. These findings indicate that time could be spent profitably in teaching handwriting improvement skills to high school age students.

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